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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

ZIMMERMAN, JOHN J

ART UNIT

PAPER NUMBER

1775

8
DATE MAILED: 12/31/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-6

Office Action Summary

Application No.

09/704,228

Applicant(s)

OBESHAU, DALE

Examiner

John J. Zimmerman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-21 and 31-40 is/are rejected.
- 7) ☒ Claim(s) 4, 22-30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) ☐ Other: _____

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FINAL REJECTION

Amendments

1. The Amendment and Request for Reconsideration Under 37 CFR 1.111 and 1.115 received October 19, 2001 has been entered. Claims 1-40 are pending in this application.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 5 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. It is indefinite as to what is a "light" metal (e.g. claim 5, line 2) or a "heavy" metal (e.g. claim 7, line 2) since there is no official metallurgical standard defining these terms and applicant's disclosure does not adequately define the terms. Although it is noted that the paragraph spanning pages 5 and 6 of the specification lists various "light" and "heavy" metals, there appears to be no relationship between the atomic mass of the metal and qualifying for one of the two groupings. Since listed "light" metals (e.g. molybdenum, zinc) can be heavier in atomic mass than a listed

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“heavy” metal (e.g. nickel, copper, etc. . .), the atomic mass of the metal does not appear to be the difference between a “light” metal and a “heavy” metal in applicant’s disclosure. Therefore it is indefinite as to what standard must be met to qualify as a “light” metal or a “heavy” metal in order to meet (or fail to meet) the claim limitations. Cancellation of these claims or replacing the indefinite terms with their associated Markush groups from the specification would obviate this rejection.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

6. Claims 34-36 are rejected under 35 U.S.C. 102(e) as being anticipated by Logan (U.S. Patent 6,227,252 B1).

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7. Logan discloses a hollow contoured structural member comprising a contoured inner layer, an intermediate honeycomb layer and a contoured outer layer (e.g. see Figures 1-4). Logan may not disclose the same process steps, but the rejected claims are product claims and not process claims. When there is a substantially similar product, as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct not the examiner to show that the same process of making, see *In re Brown*, 173 U.S.P.Q 685, and *In re Fessmann*, 180 U.S.P.Q. 324. Particularly note that in claims 35 and 36, the shrink wrap is added *and* removed and therefore would not be present in the claimed final article.

8. Claims 34-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Wilkinson (U.S. Patent 4,161,231).

9. Wilkinson discloses a hollow contoured structural member comprising a contoured inner layer, an intermediate honeycomb layer and a contoured outer layer (e.g. see Figures 1-4). Wilkinson may not disclose the same process steps, but these claims are product claims and not process claims. When there is a substantially similar product, as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct not the examiner to show that the same process of making, see *In re Brown*, 173 U.S.P.Q 685, and *In re Fessmann*, 180 U.S.P.Q. 324. Particularly note that in claims 35 and 36, the shrink wrap is added *and* removed and therefore would not be present in the claimed final article.

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10. Claim 14 is rejected under 35 U.S.C. 102(a) as being anticipated by Ohm (U.S. Patent 6,116,290).

11. Ohm discloses a hollow contoured structural member comprising a contoured inner layer, an intermediate ribbed layer and a contoured outer layer (e.g. see Figures 1-10). The inner layer may be a composite material (e.g. see column 2, lines 32-38).

12. Claims 34 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Mann (U.S. Patent 3,332,446).

13. Mann discloses a hollow contoured structural member comprising a contoured inner layer, an intermediate wrapped ribbed structure layer and a contoured outer layer (e.g. see Figures 1-2). Regarding claim 35, Mann may not disclose the same process steps, but these claims are product claims and not process claims. When there is a substantially similar product, as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct not the examiner to show that the same process of making, see *In re Brown*, 173 U.S.P.Q 685, and *In re Fessmann*, 180 U.S.P.Q. 324. Particularly note that in claims 35, the shrink wrap is added *and* removed and therefore would not be present in the claimed final article.

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14. Claims 1-3, 34 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Frease (U.S. Patent 1,677,714).

15. Frease discloses a hollow contoured structural member comprising a contoured inner layer, an intermediate wrapped ribbed structure layer and a contoured outer layer (e.g. see Figures 1-5). Regarding claim 35, Frease may not disclose the same process steps, but these claims are product claims and not process claims. When there is a substantially similar product, as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct not the examiner to show that the same process of making, see *In re Brown*, 173 U.S.P.Q. 685, and *In re Fessmann*, 180 U.S.P.Q. 324. Particularly note that in claims 35, the shrink wrap is added *and* removed and therefore would not be present in the claimed final article.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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17. Claims 12-15 and 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Logan (U.S. Patent 6,227,252 B1).

18. Logan discloses a hollow contoured structural member comprising a contoured inner layer, an intermediate honeycomb layer and a contoured outer layer (e.g. see Figures 1-4). Regarding claims drawn to specific materials, Logan may differ from these claims in that Logan only discloses examples of Grade X65 steel (e.g. see column 3, lines 21-23) for his contoured structural member. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use any conventional materials for the contoured structural member that might be suited to particular structural requirements and particular environments in which Logan's structural member might be useful. The examiner takes Official Notice that light metals (e.g. aluminum, titanium, etc. . .), composite materials and stainless steels are conventionally used in piping and therefore their use in Logan's structural configuration would have been considered an obvious variation on the disclosure of Logan. Regarding article claims that recite the method by which the article is made (e.g. claim 39-40), Logan may not disclose the same process steps, but these claims are product claims and not process claims. When there is a substantially similar product, as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct not the examiner to show that the same process of making, see *In re Brown*, 173 U.S.P.Q 685, and *In re Fessmann*, 180 U.S.P.Q. 324.

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19. Claims 5-20 and 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frease (U.S. Patent 1,677,714).

20. Frease discloses a hollow contoured structural member comprising a contoured inner layer, an intermediate wrapped ribbed structure layer and a contoured outer layer (e.g. see Figures 1-5). Regarding claims drawn to specific materials, Frease may differ from these claims in that Frease may not disclose specific materials for his contoured structural member. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use any conventional materials for the contoured structural member that might be suited to particular structural requirements and particular environments in which Frease's structural member might be useful. The examiner takes Official Notice that light metals (e.g. aluminum, titanium, etc. . .), composite materials and stainless steels are conventionally used in structural members and therefore their use in Frease's structural configuration would have been considered an obvious variation on the disclosure of Frease. Regarding claims to specific intermediate layer configurations that may not be disclosed by Frease (e.g. honeycomb cores), the examiner takes Official Notice that honeycomb configurations are now considered conventional for core materials that have good load bearing properties. In view of the above, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use any conventional core configuration known for load bearing properties for the core of Frease because Frease discloses

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that this is the purpose of the intermediate layers. Regarding article claims that recite the method by which the article is made (e.g. claims 39 and 40), Frease may not disclose the same process steps, but these claims are product claims and not process claims. When there is a substantially similar product, as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct not the examiner to show that the same process of making, see *In re Brown*, 173 U.S.P.Q 685, and *In re Fessmann*, 180 U.S.P.Q. 324.

21. Claims 12-15, 21 and 31-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cappa (U.S. Patent 5,848,767).

22. Cappa discloses forming contoured honeycomb structures by applying an inner face sheet to a mandrel and bending a honeycomb core about the mandrel followed by applying an outer face sheet. Cappa then applies a bag around the structure and uses a vacuum to compact the contoured honeycomb structure while the adhesives are cured (e.g. see column 4, line 64 - column 6, line 59). Cappa differs from the claims mainly in that Cappa uses a metal honeycomb core and composite sheet inner and outer layers while applicant claims various combinations of metal inner sheet and/or outer sheet construction or combinations of metal and composite sheets in the contoured structure construction. However, Cappa discloses that in order to save weight and meet various requirements for spacecraft, manufacturers in industry have been substituting composite materials for various parts of aluminum structural elements (e.g. see Background of the

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Invention - column 1, lines 6-67). In addition, the examiner takes Official Notice that using metal for the face sheets in structural honeycomb articles is conventional in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use any combination of composite and metal materials that would best suit the portion of the spacecraft that would be made by Cappa's process because the skilled artisan in this art would find the use of metal and/or composite material face sheets to be an obvious variation on the disclosure of Cappa. Although it is noted that Cappa uses a vacuum bag to secure his structure while it is curing and applicant recites a shrink-wrap materials in some of the pending claims, it would have been obvious to one of ordinary skill in the art at the time the invention was made that a shrink-wrap material performs the same function as the vacuum bag of Cappa and therefore it would not be a patentable distinction over Cappa's disclosed process.

Response to Arguments

23. Applicant's arguments filed with Amendment and Request for Reconsideration Under 37 CFR 1.111 and 1.115 received October 19, 2001 have been fully considered but they are not persuasive with regards to the remaining rejections.

24. Applicant argues that the rejection of claims 5 and 7 under 35 U.S.C. 112, second paragraph, is in error since applicant may be his own lexicographer. The examiner still finds claims 5 and 7 to be indefinite since there is no official metallurgical standard defining the terms

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“light” metal or “heavy” metal and applicant’s disclosure does not adequately define the terms “light” and “heavy” metal. Although it is noted that the paragraph spanning pages 5 and 6 of the specification lists various “light” and “heavy” metals, the atomic mass of the metal does not appear to be the criteria for qualifying for one of the two groupings and it is not exactly clear what the criteria applicant contemplates. Since listed “light” metals (e.g. molybdenum, zinc) can be heavier in atomic mass than listed “heavy” metals (e.g. nickel, copper, etc. . .), the atomic mass of the metal does not appear to matter in determining “light” metals and “heavy” metals in applicant’s disclosure. Therefore it is indefinite as to what standard must be met to qualify as a “light” metal or a “heavy” metal in order to meet the claim limitations. When an applicant decides to be his own lexicographer, applicant must adequately define his terms and avoid definitions repugnant to conventional definitions in the art. Applicant’s lists of light and heavy metals appears to defy convention since the light metals can be heavier in atomic mass than the heavy metals and therefore applicant’s definitions are repugnant to convention and it remains indefinite as to what criteria must be met to qualify as a “light” metal or a “heavy” metal in claims 5 and 7.

25. Applicant’s amendments to the claims requiring a plurality of contoured inner layers and a plurality of contoured outer layers has overcome the rejection under 35 U.S.C. 102(e) of claims 1-4, 7, 9-10 and 16-20 over Logan (U.S. Patent 6,227,252 B1). Applicant argues that the rejection of claims 34-36 under 35 U.S.C. 102(e) as being anticipated by Logan (U.S. Patent 6,227,252 B1) is improper since the burden is on the examiner to show that the claimed product

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appears to be the same or similar to that of the prior art and applicant also argues that the process of Logan would “induce changes in the physical characteristics of the metal of the outer pipe of Logan via the heating/cooling or cutting process”. In response to applicant’s arguments, the examiner clearly noted that Logan discloses a hollow contoured structural member comprising a contoured inner layer, an intermediate honeycomb layer and a contoured outer layer (e.g. see Figures 1-4). This is the same physical configuration required by the claims and therefore the burden of showing the same or similar physical product was clearly met by the examiner. It therefore clearly was the applicant’s burden to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977). Applicant has argued that the process of Logan would “induce changes in the physical characteristics of the metal of the outer pipe of Logan via the heating/cooling or cutting process”, but it is unclear what these vague physical characteristic might be and applicant does not adequately explain how applicant believes pending claims 34-36 are patentably distinguished over an article having these alleged physical characteristics. It is not clear how a roll wrapped outer layer (e.g. claims 35 and 36) is necessarily patentably distinguishably from an outer layer applied by splitting a pipe and rejoining (e.g. column 4, lines 30-38, of Logan) since both processes result in a layer having a seam nor is it clear how a roll wrapped intermediate layer can be physically and patentably distinguished from the sectional honeycomb layer of Logan. While Logan may use welding and/or other heating processes in the manufacture of his article, applicant’s use of

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“comprising” (in claims 34-36) allows for any additional steps (including welding steps to join the edges of the layers at the seams and/or other heating/cooling or cutting processes). Applicant indicates that roll wrapping can form seamed butt joints (e.g. see page 23, lines 3-8 of the specification). Therefore it is not clear how applicant believes the articles produced by processes comprising the steps of the pending claims 34-36 are patentably distinct from the articles produced by Logan.

26. Applicant's amendments to the claims requiring a plurality of contoured inner layers and a plurality of contoured outer layers has overcome the rejection under 35 U.S.C. 102(b) of claims 1-4 and 16-20 over Wilkinson (U.S. Patent 4,161,231). Applicant argues that the rejection of claims 34-36 under 35 U.S.C. 102(b) as being anticipated by Wilkinson (U.S. Patent 4,161,231) is improper since the burden is on the examiner to show that the claimed product appears to be the same or similar to that of the prior art and applicant also argues that the process of Wilkinson forms the outer skin from separate outer skin plates and therefore the outer skin is formed of a non-continuous layer of numerous pieces. In response to applicant's arguments, the examiner clearly noted that Wilkinson discloses a hollow contoured structural member comprising a contoured inner layer, an intermediate honeycomb layer and a contoured outer layer (e.g. see Figures 1-4). This is the same physical configuration required by the claims and therefore the burden of showing the same or similar physical product was clearly met by the examiner. It therefore clearly was the applicant's burden to prove that prior art products do not necessarily or

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inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977). Applicant has argued that the process of Wilkinson forms the outer skin from separate outer skin plates, but applicant does not adequately explain how applicant believes pending claims 34-36 are patentably distinguished over an article having a skin formed from numerous pieces. There is no limitation in claims 34-36 which requires that the outer layer must a single piece of material and is not a layer formed from separate plates. Arguments not commensurate with the actual limitations of the claims can be given little weight. Applicant's use of "comprising" (in claims 34-36) allows for any additional steps (including piecing a layer together from individual plates followed by roll wrapping the layer) and therefore it is not clear how applicant believes the articles produced by processes comprising the steps of the pending claims 34-36 are patentably distinct from the articles produced by Wilkinson.

27. Applicant argues that the rejection of claim 14 under 35 U.S.C. 102(a) as being anticipated by Ohrn (U.S. Patent 6,116,290) is incorrect since the passages 18 are part of the liner 14. The examiner notes that Figures 4 and 7 of Ohrn clearly show liner 14 as a separate layer from the intermediate layer of conduits (see applicant's Figure 3 for verification that a layer of conduits meets the limitations of claim 14) and Figure 10 of Ohrn clearly shows a separate intermediate layer of standoff ribs 24.

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28. Applicant's amendments to the claims requiring a plurality of contoured inner layers and a plurality of contoured outer layers has overcome the rejection of claims 1-9 and 11 under 35 U.S.C. 102(b) as being anticipated by Mann (U.S. Patent 3,332,446). The new roll wrapping requirement in amended method claim 21 has overcome the rejection of this claim by Mann. Applicant argues that the rejection of claims 34-35 under 35 U.S.C. 102(b) as being anticipated by Mann is improper since the burden is on the examiner to show that the claimed product appears to be the same or similar to that of the prior art and applicant also argues that article produced by the process of Mann would "would have physical characteristics different than those imparted via a roll wrapping process". In response to applicant's arguments, the examiner clearly noted that Mann discloses a hollow contoured structural member comprising a contoured inner layer, an intermediate wrapped ribbed structure layer and a contoured outer layer (e.g. see Figures 1-2). This is the same physical configuration required by the claims and therefore the burden of showing the same or similar physical product was clearly met by the examiner. It therefore clearly was the applicant's burden to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977). Applicant has argued that the article produced by the process of Mann "would have physical characteristics different than those imparted via a roll wrapping process", but it is unclear what these vague physical characteristic might be and applicant does not adequately explain how applicant believes pending claims 34-35 are patentably distinguished over an article having these alleged physical

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characteristics. It is not clear how a roll wrapped layer is necessarily patentably distinguishably from a layer made with a forming die and welded in a butt joint along the seam (e.g. column 2, lines 60-61, of Mann) since both processes result in a layer having a seam. Applicant indicates that roll wrapping can form seamed butt joints (e.g. see page 23, lines 3-8 of the specification). Nor is it clear how a roll wrapped intermediate layer can be physically and patentably distinguished from the ribbed layer of Mann. Therefore it is not clear how applicant believes the articles produced by processes comprising the steps of the pending claims 34-35 are patentably distinct from the articles produced by Mann.

29. Claims 1-3, 34 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Frease (U.S. Patent 1,677,714) since Frease discloses the use of plurality of inner and outer layers of material. Applicant argues that Frease only discloses the use of a "single layer for the inner tube 12 and the outer tube 11". However, there are multiple intermediate layers between the intermediate layer 16 and the outer and inner walls of Frease's tubular structure and therefore claims 1-3 are anticipated by Frease. Applicant has argued that the article produced by the process of Frease "would have physical characteristics different than those imparted via a roll wrapping process", but it is unclear what these vague physical characteristic might be and applicant does not adequately explain how applicant believes pending claims 34-35 are patentably distinguished over an article having these alleged physical characteristics. It is not clear how a roll wrapped layer is necessarily patentably distinguishably from a layer made with process of

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Frease since both processes result in a layered tubular structure. Applicant's argues that Frease uses any number of sheets, plates, or strips secured to each other by rivets, welding or other fastening means, but the use of multiple sheets, plates or strips and the use of rivets, welding or other fastening means is not prohibited by the claims. Arguments which are not commensurate with the limitations of the pending claims can be given little weight. Therefore it is not clear how applicant believes the articles produced by processes comprising the steps of the pending claims 34-35 are patentably distinct from the articles produced by Frease.

30. Regarding the rejection of claims 12-15 and 39-40 under 35 U.S.C. 103(a) as being unpatentable over Logan (U.S. Patent 6,227,252 B1), applicant argues that Logan is specific to materials used to construct submerged pipelines in shallower water depths and thus "Logan specifies that only certain types of materials can be employed because of the environment in which his invention is used". The examiner notes, however, that submerged pipeline construction is only Logan's preferred end use (e.g. column 2, lines 7-12) and one of ordinary skill in the art at the time the invention was made would understand that Logan's invention would be useful in any pipeline environment which requires lightweight and resistance to pressure differentials.

31. Regarding the rejection of claims 5-20 and 39-40 under 35 U.S.C. 103(a) as being unpatentable over Frease (U.S. Patent 1,677,714), applicant argues that Frease secures his articles by rivets, welding or other fastening means and his structural members are adapted to be

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manufactured by sheet metal channel forming equipment. Applicant argues that “the skilled artisan would not have been motivated to use just any material, but only those types of materials that can be made in the manner described by Frease”. In response to this argument, the examiner notes that many composite materials (e.g. reinforced metal sheet, etc. . .) can be formed in the same manner as metal sheet is formed and therefore one of ordinary skill in the art would not be adverse to using modern composite materials in the process of Frease.

32. Applicant argues that the rejection of claims 12-15, 21 and 31-40 under 35 U.S.C. 103(a) as being unpatentable over Cappa (U.S. Patent 5,848,767) is improper because the skilled artisan would have understood that the manufacturers are moving towards substituting composite materials for aluminum for the inner and outer face sheets of spacecraft frames which is exactly the opposite of the proposed modification in the rejection. The examiner notes however, that the very fact that Cappa discloses that in order to save weight and meet various requirements for spacecraft, manufacturers in industry have been substituting composite materials for various parts of aluminum structural elements is an admission that alternate use of aluminum (although not as desirable from the weight standpoint) is considered an obvious variation by one of ordinary skill in the art for these structural elements and therefore the basis for the rejection is correct.

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Allowable Subject Matter

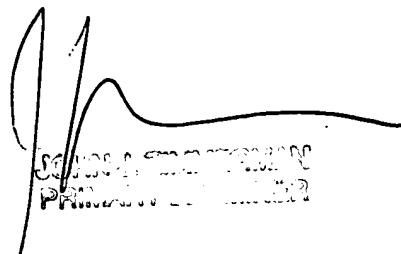
33. Claims 4 and 22-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

34. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

35. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Zimmerman whose telephone number is (703) 308-2512 and whose fax number is (703) 872-9311.

jjz
December 31, 2001



JOHN ZIMMERMAN
Patent Examiner